

Journal of Biology, Agriculture and Healthcare
ISSN 2224-3208 (Paper) ISSN 2225-093X (Online)
Vol.3, No.2, 2013

www.iiste.org



Farmers' perception and Knowledge need for adoption of new cultivars of cassava in Igabi Local Government Area (LGA), Kaduna State.

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Abstract

The study examined farmers' perception and knowledge need for adoption new varieties of cassava in Igabi LGA, Kaduna State. The purpose of the research was to;(1) ascertain how cassava farmers in the area perceive the new varieties of cassava vis-a-vis the technologies required for its propagation, and (2) the relationship between the existing and recommended knowledge of cassava cultivation in the area. Seventy six respondents used for the study were selected by random sampling while focus group discussion and interview schedule were employed to gather data. Data were analyzed by mean score analysis. The result of the analysis shows that majority (36.8%) were between 30- 39 years, 89% married and 34.2% had secondary education while 50% had regular extension contact. However, out of five (5) main recommended production technologies, only two-planting methods (51.3%) and weeding interval (56.6%) were in line with farmers' previous experience or knowledge. Farmers perceived the new cassava cultivars as beneficial through its high yielding capacity (3.3*), fast maturity (3.1) and disease resistance (2.5) among others, while capital and marketing (3.2 apiece), farm size (3.0) were among the perceived constraints to adoption of the new cultivars. The study recommended among others formation of cooperative society to aid farming activities in the area.

Keywords: awareness, benefit, constraints, knowledge of planting cassava, perception.

1. Introduction

Nigeria was once rated as the World's leading producer of Cassava during the administration of President Olusegun Obasanjo. This position is an indication among others that farmer in the country has good understanding of the cultural and agronomic practices required for cassava cultivation through proper and thorough extension services. Cassava does well in poor soil with low rainfall. It is a perennial with wide harvesting window which allows it to act as a farming reserve (Chiedozie, 2011). However, in the face of the present food insecurity battling the country the need to sustain cassava production is unarguable. Cassava has vast food derivatives and many

uses; some of its food values include tapioca, fufu, tuwo, bread; while the uses include sweetener (cassava fructose and glucose) as substitute for sucrose in Jams and Canned food, in confectionery as gums, as monosodium glutamates in Asia to enhance flavor in food e.g Ajinomoto and Vedan etc, as glue in plywood industry, in wet stage of paper making as flocculate, as biodegradable polymer to replace plastics in packaging materials in textile industry to soften, protect and make fabric durable and shinning at finishing. Cassava contains about 1 to 2 percent crude protein, rich in vitamin C (some quantities of thiamine, riboflavin and nicotinic acid (Chidozie, 2011). Hay from cassava is rich in protein and condensed tannins while its chip is the major source of ethanol production in China. If well harnessed cassava can be a panacea to economic recovery in Nigeria. Thus, the bid to enhance its production in Igabi LG Kaduna State North Nigeria in 2005 and 2010 with the introduction of a new set of cassava cultivars- TMS 01/412; 01/1368 and NR 03/0211 to farmers in the area through collaboration between the State Agricultural Development Project (KADP) and International Institute for Tropical Agriculture (IITA) collaborated and introduced a new set of cassava cultivars. These varieties though characterized by shorter maturity time, disease resistance and high yield require farmers' perception and perhaps its dissemination to other LGs in the six geopolitical zones across the country. However, perception as bedrock of adoption is contingent upon many factors such as personal, socioeconomic, sociocultural and sociopolitical parameters (Clark and Akinbode, 1986; Voh, 1982; Parchio and Ashby, 1983). For instance, availability of credit, compatibility of existing technology with improved ones, suitability to farmers' circumstances and needs and its financial profitability, attributes of innovation and inability of farmers to give up their old ways, extension contact and education (Alao, 1983; Hook, 1983; Ekpe and Obeten, 2002; Akerhe, 1983; Lionberger and Gwin, 1982; Ani, 2002; Onazi, 1973; Akanya, 1989; Osusi, 1983; Igodan and Jabar, 1993). Thus, there is need to investigate how farmers in the study area perceived the innovation in terms of its benefit and constraints. The study will also assess the relationship in knowledge of cassava cultivation between the existing and recommended one for the purpose adoption.

2. Methodology (Materials and Methods)

The study was carried out in Igabi LGA, Kaduna State. It is located in the Guinea savannah of Nigeria on Latitude $10^{\circ}47'N$ and Longitude $7^{\circ}46'E$. It is bounded by Giwa, Zaria, Kaduna North and South LGAs. Their major occupation is farming and cassava is one of the staple crops planted. The mean annual rainfall is between 1000mm-1500mm. The LG consist of fourteen districts out of which three were purposively selected and by random sampling three villages were further selected from each of the districts and ten cassava farmers were picked from each of the households selected which added up to ninety respondents. Primary data used were collected through structured questionnaire, interview schedule backed with focused group discussion in some cases. Only seventy six filled and returned data collecting instruments were used for this study. Some of the data collected included personal and socioeconomic parameters of the respondents, past and present experience of cassava propagation, perception about the benefit and constraints of the

newly introduced technologies of cassava production. Data were analyzed by descriptive statistics-frequency and percentages, and Mean score analysis.

3. Result and Discussion

Personal characteristics of respondents

Majority of the respondents (77.6%) were aged between 20 – 49 while the remaining (22.4%) were aged between 50 and above. This is an advantage for the adoption and spread of innovative practices. Since young people are likely to accept and serve better as agent of innovation transfer (Onu and Madueke, 2002). More so, the higher percentage of the farmers falls within economically active age. About (19.7%) had primary education, (34.2%) has secondary education, 14.5% had tertiary education, and 18.4 % and 13.2% had adult and Arabic education respectively. According to Osusi (1983), education has the capacities to influence people to accept new technology and also changes their attitude to the desired technology. Patrick and Edna – Matthew (2002) reported that the problem of wide spread of illiteracy among farmers who cannot read would hinder the understanding of information at their disposal. This implies that the respondents' education in the study area will readily predispose them to have balanced perception of the new cassava cultivars. The study further shows that (56.6%) that between 1 -3 plots, 30.3% had 4 -6 plots, 10.5% had 7-9 plots and 2.6% had 9 plots and above. The result confirmed the findings of Alao (1971) that a farmer may have positive behavior to a new technology but might have limitation due to insufficient or non – availability of farm land. Also, Rogers and Shoemaker (1971) in their discussion on attitude – behavior consistency” listed farm size as one of the eight (8) variables that were considered important in determining farmers perceived acceptability of agricultural innovations. Cassava farmers in the study area show acceptable tendency to the adoption of the innovation but are limited by their farm sizes to expand their horizon. Hence, it is an indication that majority of the respondents are small scale farmers and subsistence farming is prevalent in the area and this can have effect on carrying out the recommended practices of some innovations. The findings on years of farming experience revealed that majority (44.7%) of the farmers had long years of farming experience (13 years and above) in cassava production, 27.6% had experience between 9 – 12 years, 13.2% had 5-8 years of experience. Farming experience affects farm managerial know how and decision making process (Ani, 2002). Obviously, an experienced farmer will most likely identify the relative advantage of improved varieties over local varieties which is the case in the study area. In terms of extension contact the study shows that 50% of the respondents (Cassava farmers) in the study area had regular extension visits, 7.9% had very regular contact and 42.1% had less regular contact. This gives credence to Ekpe and Obeten (2002) who found out that the more, the regularity of extension contact between farmers and the extension agent, the more the farmers' awareness of recommended practices, because the agent supplies information on the mode of application or use of recommended technologies. Frequent contact is likely to minimize doubts among farmers. However, the findings show that all (100%) the cassava farmers in the study area were aware of the new cassava cultivars. Awareness promotes demand

and demand is a force for rapid adoption and spread of agricultural innovations (Ikpi,1989). The cassava farmers in the study area may likely have positive disposition towards the new cassava cultivars due to their high level of awareness. This conforms with Onazi (1973), who found among other reasons given for farmers non – adoption of agricultural practices in Northern Nigeria was their reluctance to give up their old ways. The study also shows that 50% of the respondents (Cassava farmers) in the study area had regular extension visit. . This gives credence to Ekpe and Obeten (2002) who found out that the more the regularity of the extension contact between farmers and the extension agent, the more the farmers awareness of recommended practices, because the agent supply information on the mode of application or use of recommended technologies. Frequent contact is likely to minimize doubts among farmers. However all (100%) the farmers in the study area were aware of the new cassava cultivars. Awareness promotes demand and demand is a force for rapid adoption and spread of agricultural innovations (Ikpi 1989). The cassava farmers in the study area may likely have positive disposition towards the new cassava cultivars due to their high level of awareness. The result also shows that most (65.8%) of the farmers in the study area preferred TMS 01/1412, while 10.5% were yet to decide on any of the varieties. The high preference of TMS 01/1412 by respondents may be as a result of its attributes such as; high beta carotene (pro – vitamin A), very high yielding capacity, very suitable for garri and fufu and environmental adaptation (NRCRI, 2011). Also, the other varieties have their own attributes which prompted some of the respondents to have preference for them. Table 1 shows the respondents’ perception of recommended technologies as a reason for the adoption of the new cassava cultivars. Some of the respondents showed welcoming attitude towards the innovation because the production management technology was in line with their previous knowledge (Local practices) and others did not. For example, planting method (51.3%) and weeding interval (56.6%) were in line with previous knowledge. While disease and pest control (61.8%), planting material (72.4%) and fertilizer requirement (64.5%) were also reasons for a welcoming attitude towards the new cultivars due to the fact that it had new and better improvement despite the deviation from previous knowledge of farmers. This conforms to the study of Onazi (1973), who found among other reasons given for farmers non – adoption of agricultural practices in Northern Nigeria was their reluctance to give up their old ways.

Nweke and Akerhe (1983) opined that before a technology transfer programme is embarked upon, it should be tested not only for its financial profitability but also for its suitability to the farmers circumstances and needs. It has been argued that if improved technology is not compatible with existing farming system, the adoption of such technology is limited (Ekpe and Obeten, 2002). In terms of the source of information, majority (61.8%) of the respondents got their information from meetings, 13.2% from radio, 10.5% from Newsletters, 7.9% among others The result gives credence to (Onu and Madueke, 2002) who stated that meetings and association create high levels of awareness of recommended technologies to peasant farmers. The results suggest that the current methods of meeting have been effective in getting information to farmers in the study area. However, majority obtained (42.1%) obtained their cassava cuttings from KADP. This may be because the extension service in the area is highly effective.

From table 3.1, seven (7) benefits were deemed important of a total of nine (9). These include High yielding capacity (3.3), Fast maturity (3.1), Disease resistance (2.5), Attractive Pellets when processed (2.9), Low hydrocyanic acid content (2.5). However, resistance to drought (2.4) and resistance to pest (2.4) were not as significant enough benefits as could make them adopt the new cultivars of cassava. According to Oladeji (2011) farmers' attitude to innovation adoption rests on its perceived benefits. Also the perception of benefits is not only based on superior yield of fresh tuber, but also on harvest duration, quality of processed products for food, labour needs and general economics of the improved varieties within the local situations (Keyser, 1984 and Ikpi et al 1986). From table 4 eight (8) variables out twelve (12) were perceived as important constraints to the adoption of the new cassava cultivars. These constraints include; Farm size (3.0) Labour availability (2.8), Fertilizer application (2.8), Pest (2.8), capital to purchase varieties (3.2), marketing (3.2), climatic adaptation of variety (2.6), education (2.5). The result of the study corroborates the findings of many researchers (Manvong et al (1995), Alao (1971), Hook (1983) Ikpi et al (1986)). Moreso, the farmers lack market channels and access to large farm to enable them cultivate cassava in large quantity variables considered as insignificant constraints in the study area were method of planting (2.4), weeding interval (2.4) and socio cultural restriction (2.4). This is in line with the findings of Peace Corps (1976), that adoption by farmers might not be worthwhile unless the new practices are culturally appropriate and respectful of tradition.

4. Conclusion and Recommendation

The study having assessed farmers' perception of new cultivars of cassava in Igabi LG, Kaduna State using benefit and constraints as guides concluded that relationship between farmers past knowledge and newly introduced one is important for better perception while regular contact and good information will provide a veritable ground for balanced perception of an innovation especially in a rural place like these study areas where there is poor road and other infrastructural network. There is therefore among others the urgent need to organize the farmers into cooperative society for ease of financial assistance amongst the farmers and a shift from total reliance on government.

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Table 1 respondents' perception of recommended production management technology (practices) for the cassava varieties

	Planting		Weeding		Disease/ Pest		Planting		Fertilizer	
	method		interval		control		material		requirement	
	ILPK DFPK		ILPK DFPK		ILPK DFPK		ILPK DFPK		ILPK DFPK	
Frequency	39	37	43	33	29	47	21	55	27	49
Percentage	51.3	48.7	56.6	43.4	38.3	61.8	27.6	72.4	35.5	65.5

Source: Field Survey, 2012

Table 2: showing perceived benefit derivable from the new cassava cultivars

S/n	perceived benefits	mean
1	High yielding capacity	3.3*
2	Fast maturity	3.1*
3	Disease resistance	2.5*
4	Attractive Pellets when processed	2.9*
5	Resistance to drought	2.4
6	Resistance to pest	2.4
7	Low hydrocyanic acid content	2.5*
8	High dry matter	2.6*
9	High starch content	2.5*

* Benefit with mean ≥ 2.5 is deemed important.

Source: Field Survey, 2012.

Table 3: showing perceived constraints to adopting the new cassava cultivars

S/n	perceived constraints	mean
1	Farm size requirement	3.0*
2	Labour availability	2.8*
3	Method of Planting	2.4
4	Weeding interval	2.4
5	Capital to purchase variety	3.2*
6	Fertilizer application	2.8*
7	Pest	2.8*
8	Marketing	3.2*
9	Theft	2.3
10	Socio – cultural restriction	2.4
11	Farming knowledge	2.6*
12	Education	2.5*

*Constraints with mean ≥ 2.5 is deemed important

Source: Filed Survey, 2012

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